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(54) OPTICAL FILM, ILLUMINATION DEVICE AND IMAGE DISPLAY DEVICE USING THE SAME

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an optical film having a phase difference layer applied to a cholesteric liquid crystal layer and usable as a brightness improving film, and having good visibility when viewed not only from the front but also from an angle in an image display device such as a liquid crystal display.

SOLUTION: In the optical film, at least one cholesteric liquid crystal layer (1) and the phase difference layer (2) are laminated. An in-plane phase difference of the phase difference layer (2) is not more than 5 nm, and RZch and RZre have a relationship of  $RZre/(-RZch)=0.05$  to  $0.35$ . RZch is a phase difference in the direction of the virtual thickness of the cholesteric liquid crystal layer (1), and RZre is a phase difference in the direction of the thickness of the phase difference layer (2).



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